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(21) International Application Number: PCT/US99/27671 (22) International Filing Date: 22 November 1999 (22.11.1999) (30) Priority Data: 09/210,016 11 December 1998 (11.12.1998) US (60) Parent Application or Grant KIMBERLY-CLARK WORLDWIDE, INC. [/]; (). EVERHART, Dennis, S. [/]; (). KAYLOR, Rosann, M. [/]; (). MCGRATH, Kevin [/]; (). GREEN, Theodore, M. ; ().	Published	
(54) Title: PATTERNED BINDING OF FUNCTIONALIZED MICROSPHERES FOR OPTICAL DIFFRACTION-BASED BIOSENSORS (54) Titre: LIAISON A MOTIFS DE MICROSPHERES FONCTIONNALISEES DESTINEES A DES BIOCAPTEURS BASES SUR LA DIFFRACTION OPTIQUE		
(57) Abstract <p>The present invention provides an inexpensive and sensitive system and method for detecting analytes present in a medium. The system comprises a diffraction enhancing element, such as functionalized microspheres, which are modified such that they are capable of binding with a target analyte. Additionally, the system comprises a polymer film, which may include a metal coating, upon which is printed a specific, predetermined pattern of analyte-specific receptors. Upon attachment of a target analyte to select areas of the polymer film, either directly or with the diffraction enhancing element, diffraction of transmitted and/or reflected light occurs via the physical dimensions and defined, precise placement of the analyte. A diffraction image is produced which can be easily seen with the eye or, optionally, with a sensing device.</p> (57) Abrégé <p>L'invention concerne un procédé et un système sensibles et bon marché de détection d'analytes présents dans un milieu. Ce système comprend un élément de rehaussement de la diffraction, comme des microsphères fonctionnalisées, lesquelles sont modifiées de telle manière qu'elles puissent se lier à un analyte cible. En outre, le système comprend un film polymère, lequel peut comporter un revêtement métallique, sur lequel est imprimé un motif prédéterminé et spécifique d'un récepteur, lequel est à son tour spécifique d'un analyte. Lors de la fixation d'un analyte cible sur des zones choisies du film polymère, soit directement, soit au moyen de l'élément d'accroissement de la diffraction, la diffraction de la lumière transmise et/ou réfléchi s produit par l'intermédiaire des dimensions physiques et détermine l'emplacement précis de l'analyte. Une image de diffraction est produite qui peut être facilement vue à l'oeil nu, ou le cas échéant, avec un dispositif détecteur.</p>		

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(54) Title: PATTERNED BINDING OF FUNCTIONALIZED MICROSPHERES FOR OPTICAL DIFFRACTION-BASED BIOSENSORS			
(57) Abstract			
<p>The present invention provides an inexpensive and sensitive system and method for detecting analytes present in a medium. The system comprises a diffraction enhancing element, such as functionalized microspheres, which are modified such that they are capable of binding with a target analyte. Additionally, the system comprises a polymer film, which may include a metal coating, upon which is printed a specific, predetermined pattern of analyte-specific receptors. Upon attachment of a target analyte to select areas of the polymer film, either directly or with the diffraction enhancing element, diffraction of transmitted and/or reflected light occurs via the physical dimensions and defined, precise placement of the analyte. A diffraction image is produced which can be easily seen with the eye or, optionally, with a sensing device.</p>			
<p>The diagram illustrates the process of creating a patterned binding surface for optical diffraction-based biosensors. The process starts with a PDMS layer on a master with a photore resist pattern. The PDMS is peeled away from the master, then exposed to a solution. The resulting PDMS layer is stamped onto a substrate, transferring the pattern to the substrate. The final step shows the patterned substrate with a layer of functionalized microspheres on top.</p>			

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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Information on patent family members

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